



## Fire at Marshall reveals lessons learned about safety

by Cindy Upton

A fire erupted in Bldg. 4755 at Marshall last Thursday. A preliminary report by an independent investigation team attributes the cause of the fire to hot slag from a welding operation.

The investigation team's final report is expected to be presented to Center Management on April 9. The report also is expected to be posted on the Web on "Inside Marshall."

Fire damage was limited to a few items of hardware mock-ups built in support of the International Space Station, along with miscellaneous items

stored in the area. There is not expected to be any impact on Space Station program activities, according to the investigation team's report.

A fire investigation team, led by Scott Croomes, manager of the Space Station Life Support Projects Office, investigated the fire. Other members of the team were Marshall Fire Protection Engineer Dennis Davis and Roger Parisa of the Marshall Facilities Services Office.

According to their findings, maintenance personnel were working on the overhead crane parked directly



Photo by Dennis Olive

**A fire in Bldg. 4755 damages space parts for the Space Station mockup.**

over the area. A welder set up equipment for work to be performed in the afternoon. When testing his set-up, the welder per-

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## To reduce cost of space transportation

## Marshall studies propellant-free space propulsion system

by Deana Nunley

NASA plans to lasso energy from Earth's atmosphere with a tether as part of the first demonstration of a propellant-free space propulsion system, potentially leading to a revolutionary space transportation system.

Scientists and engineers at Marshall are experimenting with tethers as part of a continuing effort to dramatically reduce the cost of space transportation. Flight demonstration of the Propulsive Small Expendable Deployer System — called ProSEDS — is scheduled for August 2000. ProSEDS is one of the Future-X flight experiments selected recently by NASA to help mold the future of space transportation.

The experiment will demonstrate the use of an electrodynamic tether — basically a long, thin wire — for propulsion. An electrodynamic tether uses the same principles as electric motors in toys, appliances and computer disk drives, and generators in automobiles and power

plants. When a wire moves through a magnetic field, an electrical current results. The unique type of electrical circuit created by the flow of electricity through the wire results in a magnetic field that drags or pushes on an external magnetic field.

An electrodynamic tether works as a thruster because a magnetic field exerts a force on a current-carrying wire. When electrical current flows through a tether connected to a spacecraft, the force exerted on the tether by the magnetic field raises or lowers the orbit of the satellite, depending on the direction the current is flowing.

"The working principle of electrodynamic tethers is not new, but the application to space transportation will be revolutionary," said Les Johnson, principal investigator of the ProSEDS experiment. "Imagine driving your car and never having to stop for gas — that's what a tether does for a spacecraft in Earth orbit. Tether propulsion requires no fuel, is

completely reusable and environmentally clean, and provides all these features at low cost."

While tethers have been successfully tested in space, ProSEDS will use a radically different and more efficient scheme for collecting current. Most of the metallic tether will be exposed to the environment of space, instead of covered with an insulating sleeve as in previous electrodynamic tether missions. The bare tether, about as thin as dental floss, will collect electrons directly.

Electrodynamic tethers used for propulsion in low-Earth orbit and beyond could significantly reduce the weight of upper stages used to boost spacecraft to higher orbit. Much of the weight of any launch vehicle is the propellant and it's expensive to lift heavy propellants off the

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**"Safety has No Days Off"**

— Safety slogan submitted by  
Steve Androlake, ED25

# 'Flexibility' is philosophy behind new Space Transportation Directorate

**Editor's Note:** This is the fourth in a series of articles about the Marshall reorganization announced Jan. 29 by Center Director Art Stephenson.

by Mike Wright

**F**lexibility" is the word that comes to his mind when Marshall's Rick Bachtel talks about the new Space Transportation Directorate.

Bachtel led a team of more than a dozen representatives from existing Marshall organizations responsible for coming up with the structure for the new directorate.

"I really want to thank the team. They did an outstanding job," Bachtel said.

"There are many groups at Marshall studying advanced concepts. There are many doing propulsion research. The team pulled all of this together.

"In advanced propulsion, things start and stop as new ideas and concepts come and go. The new Space Transportation Directorate will provide the Center with the flexibility to deploy the resources where they are needed at any particular time," he said.

The directorate will implement Marshall's role as Lead Center for Space Transportation Development. "It involves both planning for the future and executing the programs that are already assigned to the Center," he said. "In addition, we

have the responsibility to implement the Marshall role as a propulsion 'Center of Excellence.' This means keeping the expertise and the resources up to state-of-the-art."

Plans call for the new directorate to include 500 employees. They will come from Marshall's existing organizations like

the Space Transportation Programs Office, Program Development Directorate and the Science and Engineering Directorate. "Of course, the new Engineering Directorate will be involved in space transportation because it has the cross-cutting disciplines that are so vital to this work," Bachtel said. "We will have to have that partnership, as well as a strong partnership with the Space Shuttle Projects Office. The Space Transportation Directorate will have a portion of the engineering needed to service the Shuttle, and we want to remain absolutely dedicated to the safe operation of that vehicle."

The first level of directorate management will include the director, deputy director and chief engineer. Beyond that level, there will be a Business Management Office and Program Planning and Development Office, referred to in the initial plans for the reorganization as a Program Advocacy Office. Bachtel said the Business Office will focus inward to manage the directorate from an administrative and program control standpoint. The Program Planning and Development Office will focus on external customers like NASA Headquarters, the departments of Defense and Energy, the Office of Management and Budget and Congress. "This office will do the strategic planning,

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**Rick Bachtel discusses plans to reorganize the Space Transportation Directorate.**

## Appliances with heating elements may be connected to extension cords, power strips with built-in circuit breakers

**E**ffective immediately, appliances with heating elements (coffee pots, hot plates, personal heaters, etc.) may be connected to an extension cord with a single outlet, or to a multi-outlet power strip with a built-in circuit breaker.

MSFC Industrial Safety Procedures and Guidelines (MPG 1700.1) is being revised to reflect this change.

The total load on any one multi-outlet power strip should not exceed its rating. For example, more than one portable heater or more than two coffee pots would probably overload

the common 15 amp power strip available from the Center's sub-store. The following are some typical power requirements for basic appliances:

- Microwaves (low power), 7.1 amps
- Microwaves (high power), 12.5 amps
- Heaters (typical), 12.5 amps
- Coffee pot (Mr. Coffee, single burner), 8.5 amps
- Coffee pots (Bunn dual burner), 14 amps

# Space

*Continued from page 2*

the road maps, and communicate the directorate's mission through activities like the new Space Transportation Roundtable."

The directorate's International Space Station Propulsion Module Project will start with a staff of six. "We are trying to tie down the systems requirements for that project. We have ordered some long-lead items, but we haven't really gotten into the details related to design and fabrication," Bachtel said.

The Development Projects Office will "pick up most of the projects that are operational rather than experimental," Bachtel said, citing work on upper stages and other projects.

The X-33 Program Office, now under the Space Transportation Office, will remain essentially intact, Bachtel said. "The X-33 is the flagship technology demonstrator for technologies that would dramatically lower the cost of access to space." Work on the X-34 technology demonstrator and similar projects at Marshall also will continue virtually intact as part of a new Pathfinder Program Office. The X-34 is a reusable, suborbital, air-launched vehicle that will fly at speeds approaching Mach 8 at altitudes up to 50 miles. The Pathfinder Program also includes the X-37 project which is a new start focused on an experimental reentry test bed.

Bachtel said the Advanced Space Transportation Program Office is the directorate's "technology development arm." It will "develop the technologies for flight vehicles then turn their work over to the Pathfinder Program Office."

Planning and conceptual development for future vehicle systems will belong to the Advanced Concepts Department. A large group of the engineers in this department will come from the existing Program Development Directorate. "This department will include a group that will look at future options for the Space Shuttle. An exploration/transportation team in this group will help NASA decide what type of systems it will need to explore the universe."

One of the objectives for organizing the new directorate was to provide an environment conducive to propulsion research, Bachtel said. As a result, the directorate will include the Propulsion Research Center. "We want to fence these people off so they can do research and not get bogged down with day-day-to-day problems. They will basically plant our seed corn," Bachtel said. "Many of them will come from Program Development and the Propulsion Laboratory. They will focus on advanced chemical systems, advanced cryogenics, advanced fuels, fission, fusion, electric propulsion, propellantless propulsion and other areas of research."

Two of the largest departments in the directorate will involve vehicle systems, subsystems and component development. "These are essentially the engineering groups that came out of the Propulsion Laboratory and other labs in the Science and Engineering Directorate. One department will be oriented toward the vehicle and systems level, the other toward functional design, mechanical design and detailed analysis."

The Technology Evaluation Department will combine the Marshall East and West Test Areas currently assigned to the Propulsion Lab with the wind tunnel, air flow and water flow facilities currently assigned to the Systems and Dynamics Laboratory. "These are one-of-a-kind facilities that don't exist anywhere else," Bachtel said. "The directorate will use them to test hardware at the component and technology exploration levels. In addition, we already have some major facilities in the West Test Area that are supporting the X-33 primarily in structural testing under cryogenic conditions."

One challenge the directorate will face will "involve operating as a team and not as separate blocks" on an organization chart, Bachtel said. "The Space Transportation Directorate must also form strong partnerships with the Shuttle Projects Office, the Engineering Directorate and all of the other directorates as well."

*The writer works in the Internal Relations and Communications Office.*

## Employees reminded to keep medical appointments or cancel by telephone

Officials in the Center Operations Directorate and at the Medical Center said they appreciate efforts employees are making regarding appointments at the Medical Center.

If an appointment cannot be met, the Medical Center should be notified as early as possible. Appointments can be canceled and rescheduled by calling 4-2390.

Notifications of cancellation will allow the Medical Center staff to reschedule the appointment and to schedule another employee at the original time, thereby increasing clinic efficiency.

Employees who need to cancel laboratory work or proctosigmoidoscopy appointments are asked to cancel no later than the day before the appointment, so that someone else can be scheduled early enough to meet the fasting requirement.

The Medical Center will not call employees about missed appointments.

### Obituaries

**Congo, Grady**, 80, Athens, died Feb. 27. He retired from Marshall in 1984 where he worked as a sheetmetal mechanic. He is survived by his wife Lillian, one son and four daughters.

**Purushotham, Kal**, 61, Huntsville, died March 9. At the time of his death, Purushotham worked in the Station Life Support Projects Office in

Marshall's Flight Projects Office. He managed the Center's task agreements with the International Space Station Program for environmental control and life support systems testing and for hardware development of such items as an on-orbit patch kit for repairing holes in pressurized modules. Purushotham is survived by his wife Patricia and son William.



*Kal Purushotham*



# Welcome back

## 1998 retirees honored at annual dinner

The annual dinner honoring last year's 119 NASA-Marshall retirees was held March 23 at the Von Braun Center. Marshall management, employees, on-site contractors and retirees performed skits for the evening's entertainment. "The retiree dinner was superb," said Houston Hammac, one of the honorees. "From the response of all the people that I engaged at the event, I believe the feeling was unanimous. The highlight of the evening was certainly the entertainment program. There is no way to adequately express appreciation for the performances."



"Beach Boys" from left, Steve Beale, director of the Procurement Office, Bill Hicks of the Microgravity Program Office, and Jim Ellis, assistant director of Center Operations, catch a wave.



Sharon Hancock of Computer Sciences Corp. sings the Patsy Cline song, "Crazy."



Edwina Bressette of the Personnel Office makes opening remarks at the dinner.



Marshall retiree Bob Schwinghamer pushes a cart in his skit as a Wal-Mart greeter.



Center Director Art Stephenson leads the curtain call.



Marshall retiree Judy Martin hugs an old friend.

Photos by  
Emmett  
Given



Charles Scales, director of the Equal Opportunity Office sings The Temptations' hit "Ain't Too Proud to Beg" to his wife Bunny.



George Myers of the Structures and Dynamics Laboratory as "Ike," left, and Charlotte Teague of Computer Sciences Corp. as "Tina," right, perform with "Ikettes" Eugena Goggans and Lucy Young of the Systems Analysis and Integration Lab and Cheri Taylor of the Astrionics Lab.

### ***Air Force officials visit Marshall***

From left, Brig. Gen. Michael Hamel, deputy commander of the U.S. Air Force Space and Missile Systems Center; Brig. Gen. Brian Arnold, director of Requirements, Headquarters, U.S. Air Force Space Command; and Maj. Gen. Robert Hinson, Director of Operations, Headquarters, U.S. Air Force Space Command, discuss Space Transportation programs with Center Director Art Stephenson during a visit Monday.



Photo by Doug Stoffer

## ***Process Cross-Cut teams seek more efficient ways to do business***

by Cindy Upton

As part of the Center Cross-Cut Team effort led by Deputy Center Director Carolyn Griner to guide the overall restructuring of Marshall, five Process Teams have been formed to study specific areas.

The areas are export control, proposal development, dual career path, Center resource planning and program and project management process.

"Export Control covers a variety of Marshall activities, including foreign visitor control, export shipping, information review and approval prior to export, export license application and the like," said Team Leader Ron Koczor, associate director for science and technology in the Space Sciences Laboratory.

"The complexity comes from the fact that the regulations that define what NASA can and cannot export are not NASA's but other departments of the U.S. government," Koczor said. "The subject is very important to NASA because there are penalties involved for willful disregard of the regulations."

The Proposal Development Team, led by Johnny Stephenson of the Science and Engineering Directorate, is also looking at ways to streamline operations.

Stephenson said the team's objective is to formulate a process that enables the Center to develop winning proposals consistent with NASA directives and guidelines. "We are doing a number of things, not the least of which is incorporating the many lessons learned that we have gathered through our proposal experiences on NASA Research Announcements, as well as the experiences we have garnered through participation in many Announcements of Opportunity," Stephenson said.

"In addition, we are studying numerous outside companies to incorporate their best practices within any process we recommend for implementation. We want this process to be an enabler that Marshall employees can use to better execute our assigned missions."

The Dual Career Path Process Team, chaired by Chip Jones of the Material and Processes Laboratory, and Kevin Plank of the Human Resources Office, is developing a policy that can be clearly understood to recommend for promotion outside of supervisory positions. Previous work on Dual Career at this Center is being reviewed, as well as plans from other NASA Centers and outside organizations.

Rose Allen, who is leading the Center Resources Planning Team, said her team's purpose is to develop a new process for planning, executing and managing Marshall's in-house resources.

"We have been given very clear direction to take a 'clean-sheet' approach," said Allen, of the Microgravity Research Program Office. "Carolyn Griner has emphasized that the Center must streamline and change the way we currently do business."

"The team has spent the last two weeks identifying and understanding the problems with the current process and documenting each organization's needs," Allen said. "We have just initiated the next phase of our work to evaluate other models, determining the best practices from other organizations. As we develop the process, we plan to invite others from around the Center to review and critique the process. It is vitally important that all Marshall organizations be a part of and take ownership of this new way of doing business at Marshall."

The Program and Project Management Process Team is developing the process necessary to ensure successful implementation of the new program and project management guidelines described in NPD 7120.4A and NPG 7120.5A, said Mike Vanhooser, Process Team Lead.

"The process we develop should be applicable to all Marshall programs and projects that Provide Aerospace Products and Capabilities," said Vanhooser, of the Flight Projects Office.

*The writer is the Team Lead in the Internal Relations and Communications Office.*



# Safety

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formed a short weld. In doing so, two standard safety procedures were violated, said the report.

The procedure requires a fire watch — a spotter posted on the floor below. This person was not in place, the investigation found. Also, combustible material within 35 feet horizontally from the point of the weld had not been removed or covered to prevent entry of hot slag or sparks. “Performing either one of these precautions would have prevented or greatly reduced the magnitude of this event,” Davis said.

Shortly after performing the weld, the workers noticed smoke. The hot slag had fallen into an open plywood crate on the floor directly below. Paper packing material in the bottom of the crate ignited, and spread to other combustibles in the crate and to the crate itself. The fire spread to adjacent crates and other combustible materials stored on pallets in the area.

Area personnel reported flames over 10 feet high shortly after the fire began. They activated the building’s evacuation

alarm and called the fire department. Everyone evacuated safely. The fire department arrived within three minutes of the call and extinguished the blaze. A large amount of smoke had accumulated in the large high bay ceiling area. Personnel were allowed to re-enter the facility later that afternoon.

“We consider this fire to be a very serious event, and we are very fortunate no one was injured — which is always our first concern,” said Pete Allen, director of the Facilities Services Office. “We also are fortunate that through the quick response of the Redstone Arsenal Support Activity Fire Department, damage to the building and its contents was limited.

“This Center is working hard to reemphasize safety, and this is a lesson we can all learn from,” Allen said. “It’s apparent this entire event was caused by not properly following procedures and was therefore easily preventable. I would encourage all Marshall employees — both on-site contractors and civil servants — to use this example and reexamine our actions and assure we practice safety each and every day.”

Director of Center Operations Sheila Cloud echoed the need to follow procedures. “I am so very thankful that no one was injured. However, it is a great concern that deviation from established procedures can potentially be so devastating. This event serves as a wake-up call and lesson to all — no matter their function.”

In order to continue Center efforts to increase safety awareness, Cloud said that she has engaged an expert from the DuPont Corp. to help the Center Operations Directorate and the Center become as safe a workplace as possible. “The arrival of this consultant is timely in educating employees on safety and helping us establish a Center culture based on safe operations,” Cloud said. “Someone’s life may depend on implementing and following improved safety practices very rapidly.”

In the event of emergencies, employees should call 911 to receive the fastest possible response.

*The writer is the Team Lead in the Internal Relations and Employee Communications Office.*

## ProSEDS

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ground. Since electrodynamic tethers require no propellant, they could substantially reduce the weight of the spacecraft and provide a cost-effective method of reboosting spacecraft, and potentially, the International Space Station.

Launched on a Delta II rocket from Cape Canaveral Air Station in Florida, the ProSEDS experiment will demonstrate the use of tethers for generating significant thrust in space by decreasing the orbital altitude of the Delta II second stage.

“More than 40 percent of launches projected over the next 10 years have payloads with intended destinations beyond low-Earth orbit,” noted Leslie Curtis, manager of Marshall’s Space Transfer Technologies project. “Low-cost upper stages and on board propulsion systems are absolutely critical elements in reducing space transportation costs.”

The ProSEDS experiment is managed by Marshall’s Advanced Space Transportation Program, which is paving the highway to space by developing innovative technologies to dramatically reduce the cost of space transportation.

NASA’s industry team for the ProSEDS experiment includes: Tether Applications of Chula Vista, Calif.; Tethers Unlimited of Seattle; Electric Propulsion Laboratory of Monument, Colo.; The Michigan Technic Corp. of Holland, Mich.; Triton Systems Inc. of Chelmsford, Mass.; Smithsonian Astrophysical Observatory of Cambridge, Mass.; Alpha Technologies of Huntsville; Colorado State University in



Photo by Doug Stoffer

**Marshall Center scientist Les Johnson inspects the nonconducting part of a tether as it exits a deployer similar to the system to be used in NASA’s ProSEDS flight experiment. The experiment is scheduled for flight demonstration in August 2000.**

Fort Collins; and the University of Michigan in Ann Arbor.

*The writer, a contractor employed by ASRI, supports the Media Relations Office.*

# Dr. Eric Smith, Florida State professor, to head Marshall's Global Hydrology Research Office

By Debra Valine

**H**e happened to be in the right place at the right time some 30 years ago when space scientists began studying atmospheric research sensing.

The experience gained in those years can be credited to Dr. Eric A. Smith's appointment March 16 as manager of the Global Hydrology Research Office at Marshall, under the Intergovernmental Personnel Act.

Smith, 55, is currently a professor in the Department of Meteorology at Florida State University in Tallahassee, Fla., and faculty associate of its Supercomputer Computations Research Institute. He replaces Dr. Ron Greenwood, now vice president of research at the University of Alabama in Huntsville.

Smith, born in Florida and raised in the Midwest, holds a bachelor's degree in mathematics from the University of Wisconsin in Madison, and master's and doctorate degrees in atmospheric science from Colorado State University in Fort Collins.

He was recruited for the position based on his more than 30-year involvement with NASA and his research in atmospheric research sensing.

"I started in the field of space sciences," said Smith, who considers himself fortunate in his career to have been in the right place



Dr. Eric Smith

were the very early days of atmospheric research sensing. My first research involved the analysis of data from the first space-based atmospheric project, an experiment flown on Explorer 7."

During his years with the Johnson Research Center at the University of Alabama in Huntsville, he worked on the atmospheres of both the Earth and Venus. During this 10-year period he developed new methods for analyzing and graphically displaying satellite imagery using computers and video systems. "It was a learning area for the academic-based activities with NASA research," he said.

Taking the position as manager of the global hydrology office will fulfill

at the right time with the necessary skills. "I was with the first partnership between the universities and NASA in 1966 in Madison, Wis. Those

more than one of Smith's goals.

"I felt I could do something for myself by taking advantage of working for NASA," Smith said. "I can be more effective pushing my ideas from within."

He also has specific goals he wants to accomplish during his time with Marshall.

"I hope to insert a flight program and research vision for the (Global Hydrology Research) office that enables it to carefully use its acknowledged mission: to understand the global water cycle from many different perspectives," Smith said. He plans to do this through scientific, dedicated missions that carefully quantify and provide complete understanding based on scientific modeling expertise that covers the whole range of topics dealing with water resources.

"It's a big area, but to my knowledge, there are no science institutes that have such an opportunity," Smith said. "The Global Hydrology and Climate Center has the opportunity to become not just a center in name, but in deed. My goal here is to try to do that with some very concrete projects with NASA through its Earth Science Enterprise — the activity that sponsors most of the activity here."

*The writer, a contractor employed by ASRI, is the Marshall Star editor.*



Photo by Dennis Olive

## Thanks to Homer Hickam

Center Director Art Stephenson, left, on Monday presents former NASA employee Homer Hickam with a Director's Commendation and the Space Transportation: Past, Present and Future CD-ROM. Hickam is author of the book, "Rocket Boys," on which the movie, "October Sky" is based. The commendation thanked Hickam for speaking highly of the Center, for dedicated services to Marshall, for continuing advocacy of the American space program, and for highlighting Marshall's contributions to the space program. Hickam presented Stephenson with an autographed poster from his movie.

## Employee Ads

## Miscellaneous

- ★ Two aluminum baseball bats, Worth Copperheads, 28-inch, 32-ounce & 30 inch, 34-ounce, \$50. 534-8186
- ★ RCA 17" color TV, \$15; mesh tent for baby crib, \$40. 464-5774
- ★ AQHA Palomino broodmare and foal, Doc's Sug, Cutter Bill, San Peppy, Poco Bueno, \$4,150. 931-732-4742
- ★ Motorola cellular phone with leather case, charger, two batteries and cord, \$40. 784-9099
- ★ Kenwood stereo (CD, audio/video controller, equalizer, amp, tuner, double cassette, turntable, Magnavox speakers), \$225. 837-8003
- ★ Four Talladega race tickets, Lincoln grandstand, \$200 for four. 883-1874 after 5 p.m.
- ★ Bieffe Motorcross Kevlar helmet, \$60; MSR Rage Motorcross boots, \$50; Garmin GPS 45XL, \$110. 721-1495
- ★ Bicycle built for two, red. 881-6143
- ★ Sailboat, 15' Albacore Class, molded hull fiberglass, sails, all hardware and trailer, \$1,500. 723-2214
- ★ Nikon Coolpix 100 digital camera, for notebooks only, 512x480, flash, book CD box, \$100. 232-2696
- ★ Hay, fescue and mixed grasses, baled October 1998, \$1.50 per bale in barn. 837-2461
- ★ White baby crib (no mattress), \$35. 828-5840
- ★ 17" Mitsubishi monitor, .26 pitch, needs repair, \$60. 880-6724
- ★ Draw-Tite 2" receiver trailer hitch, \$75; black tubular running boards, \$150; spare tire cover, \$45; old body style Nissan Pathfinder. 586-9813
- ★ Registered American bulldog puppies, 6 males/6 females, all colors, parents on premises, reasonably priced. 931-433-0867
- ★ Southwest pattern sofa and loveseat, rectangular coffee table, end table, \$200. 830-9507 after 4 p.m.
- ★ Race car bed, twin size, white w/red and blue trim, \$75. 232-9632
- ★ Two Robert Trent Jones trail samplers, \$500 obo. 772-8175
- ★ Upright piano, McPhail built in 1880s, decorative panels, \$250. 776-3504
- ★ Brittany Spaniel puppies, two females, 4 weeks old, AKC registered, \$200. 350-1084
- ★ Talladega tickets, Sat./Sun., face value \$175 each. 722-0290
- ★ Pressure washer, 1200 psi Coleman, electric w/ cart, \$50. 883-4309
- ★ Four female Zebra finches, white/fawn, regular colors, to good homes only, \$10 each. 864-0362

## Vehicles

- ★ 1998 Chevy Silverado, 3/4 ton, extended cab, 4x4, 43K miles, \$23,700. 922-5727
- ★ 1994 Toyota Camry, 4-door, all options, 82K miles, \$9,500. 828-3169
- ★ 1992 Honda Civic, DX, 4-door, 5-speed, \$4,150. 379-3606
- ★ 1989 Buick Reatta, white w/red leather, loaded, maintained, garaged, \$6,000. 536-5132
- ★ 1994 Chevy Corsica, \$3,600. 355-6116
- ★ 1989 Chevrolet van, 107,200 miles, \$4,500. 864-0155
- ★ 1996 Honda Accord, silver anniversary edition, automatic, new tires, \$12,250. 837-0846
- ★ 1992 Cadillac Cimarron, 37K miles, 4-door, automatic, A/C, stereo, leather, cruise, PW, power seats, \$1,600. 881-8953
- ★ 1998 Honda Prelude, black, low mileage, 5-speed, \$18,900 negotiable. 350-1084
- ★ 1987 Mazda 626 LX, 4-door, 5-speed, 135K miles, tilt, cruise, air, all power, white, \$2,400. 721-9601
- ★ 1991 Honda Civic, CRX-si, black, sunroof, CD, A/C, 106K miles, \$4,500. 882-6861
- ★ 1985 Toyota Cressida, needs engine work, best offer. 233-0705

## Wanted

- ★ To buy aluminum baseball bats. 828-3181
- ★ Pool table w/sectional slate base, dark wood finish, good condition. 881-9567
- ★ Used camper shell for small 1988 Toyota truck. 882-7084
- ★ 30-40 foot extension ladder. 882-6446
- ★ Tiller for small garden. 883-2757
- ★ Baby high chair in good condition. 859-4745
- ★ Bowflex machine. 721-9937

## Carpool

- ★ From Decatur to NASA and back, Mon., Wed, Thurs. and Fri., non-smoker. 351-6855

## Free

- ★ Monkey grass, you dig. 883-4343
- ★ Walnut and oak wood pieces from craft work. 881-8648

## Lost

- ★ Men's black gym bag at exercise facility, contains wedding band. Reward! 882-2349

## Found

- ★ Sweater and bag of electrical connectors, outside Bldg. 4487. 544-4758 to identify
- ★ Large flathead screwdriver, found on Gemini Ave. outside D-8 Gate. 544-4758 to identify
- ★ Lightweight jacket, Bldg. 4312 Reception Area. 544-4758 to identify
- ★ Child's shoe, parking area of Bldg. 4200. 544-4541
- ★ Two Ford keys, Bldg. 4755. 544-4541
- ★ One Nissan car key, Bldg. 4312. 544-4541
- ★ Money in parking lot, south side of Mercury Road, across from Bldg. 4471. 544-4541
- ★ Men's watch, Bldg. 4752. 544-4541
- ★ Apple computer keyboard, outside Bldg. 4487. 544-4758 to identify
- ★ Two keys in parking lot of Bldg. 4200. 544-4758 to identify

## Center Announcements

- ☛ **Emergency warning system test** — The monthly test of the Emergency Warning System has been scheduled April 1 at 3 p.m. This is an audio test only. Do not evacuate to protective areas. If severe weather is occurring at this time, the test will be rescheduled to a later date. Safety monitors should send reports of malfunctioning speakers to AB11/Emergency Preparedness Officer, 544-5187, immediately after the test.
- ☛ **Procurement retirees** — Procurement Office retirees will meet for breakfast at 9 a.m., April 6, at Shoney's in Haysland Square. For more information, call Carl Melton at 837-5604.
- ☛ **Bahama Cruise** — Executive Tour & Travel Service Inc., through the NASA Exchange at Marshall, is offering a Grand Bahama Vacation Cruise-N-Stay for only \$279 per person, based on double occupancy. A deposit of \$165 by April 30 is required for this exclusive offer, but travel dates are good through April 2000. For more information, see "Inside Marshall, Employee Information, NASA Exchange."
- ☛ **Costing Workshop** — The MEVATEC Corp., in participation with Huntsville Section 1503 of the American Society for Quality, will conduct a three-day conference on Activity Based Management/Activity Based Costing techniques and methodologies April 20-22 at the Huntsville Marriott. Cost for the workshop is \$495 which includes breakfast, lunch and a copy of MEVATEC's FastTrack ABM software for modeling and simulation. To register, call Brenda Pacheco at (256) 890-8125.

## MARSHALL STAR

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Marshall Space Flight Center, Alabama 35812  
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